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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/569,581	02/23/2006	Nobuhiro Murakami	SHIGCP10AP04AK	5729
27667 7590 06/13/2008 HAYES SOLOWAY P.C. 3450 E. SUNRISE DRIVE, SUITE 140 TUCSON, AZ 85718				
EXAMINER WAKS, JOSEPH				
ART UNIT 2834		PAPER NUMBER		
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/569,581

**Applicant(s)**

MURAKAMI ET AL.

**Examiner**

Joseph Waks

**Art Unit**

2834

**Period for Reply** -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 05 May 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 13, 15, 16 and 19-27 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 25-27 is/are allowed.
- 6) ☒ Claim(s) 13, 15, 16, 19-22 and 24 is/are rejected.
- 7) ☐ Claim(s) 23 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/808)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 15 recites the limitation "said air flow device" in line 7. There is insufficient antecedent basis for this limitation in the claim.
3. Claims 20 and 22 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 20 and 22 are indefinite as being dependent on cancelled claim 18.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim, 13, 15, 16, 19, 20, 23 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hanson (US 4,366,386) in view of Skarpa (US 6,375,424) and Terracina (WO 02/42640 A1).

Hanson discloses a Magnus type wind power generator 28 having a horizontal rotary shaft 92 transmitting a rotation torque to a power generating mechanism 96, rotary cylindrical columns 36, 38, 40 disposed radially from the horizontal rotary shaft, a motor 76 driving simultaneously the rotary cylindrical columns about axes thereof,

wherein Magnus lift generated by interactions between the rotations of the respective rotary columns and wind power causing to rotate the horizontal rotary shaft to drive the power generating mechanism, drive said power generating mechanism, and a cup 46. However, Hanson does not disclose the driving motors driving the respective rotary cylindrical columns about axes thereof, and an air flow device in the form of a rib in a spiral shape extending from an outer peripheral surface of said rotary cylindrical column which generates an air flow component at least parallel with an axis of the rotary cylindrical column upon the outer peripheral surface of said rotary cylindrical column, and so as to increase the Magnus lift, generating an air flow component parallel with the axis of the rotary column and in a direction departing from the horizontal rotary shaft upon the outer peripheral surface of the rotary column.

Skarpa discloses Magnus type wind power generator having motors 2 driving the respective rotary columns 8 for the purpose of controlling the column to fit to work with various speed at various speed range. Skarpa discloses in Figure one a single blade system. However in column 5, lines 56-58 Skarpa discloses that the system may be provided with double, tri or multi blade arrangement. Since each blade is provided with a motor, inherently a multi blade system will be provided with number of motors corresponding to the number of blades.

Terracina discloses the win turbine generator having means and methods for increasing Magnus effect (i.e. lift) including rotating columns 3 and the air flow device 4 in the form of a rib in a spiral shape (Re Figures 4 and 5) extending from an outer peripheral surface of said rotary cylindrical column which generates an air flow

component at least parallel with an axis of the rotary cylindrical column upon the outer peripheral surface of said rotary cylindrical column, and so as to increase the Magnus lift, generating an air flow component parallel with the axis of the rotary column and in a direction departing from the horizontal rotary shaft upon the outer peripheral surface of the rotary column including fin member and generating an air flow component parallel with the axis of the rotary column and in a direction departing from the rotary shaft upon the outer peripheral surface of the rotary column (re Figure 4), or in a direction toward the horizontal rotary shaft upon the outer peripheral surface of the rotary cylindrical column (Re Figure 5).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to design the wind power generator as taught by Hanson and to provide driving motors driving the respective rotary cylindrical columns about their axes as taught by Skarpa, for the purpose of controlling each column to fit to work with various speed at various speed range according to available wind conditions

It would have been further obvious to one having ordinary skill in the art at the time the invention was made to design the combined wind power generator and to provide the air flow device generating an air flow component parallel with the axis of the rotary column and in a direction departing from the horizontal rotary shaft upon the outer peripheral surface of said rotary column as taught by Terracina for the purpose of increasing the Magnus effect, thus improving the generator efficiency by increasing the rotor lift and increasing the turbine torque (See page 7, lines 14).

Re claim 24, Hanson discloses one motor 76 driving simultaneously three rotating columns 36, 38, 40.

6. Claims 21 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hanson (US 4,366,386) in view of Skarpa (US 6,375,424) and Terracina (WO 02/42640 A1) as applied to claims 13 and 18 above, and further in view of Shimizu et al. (JP 06-316925).

The combined wind power generator discloses all elements essentially as claimed. However, it does not disclose the plurality of dimples provided upon the outer peripheral surface of the rotary column.

Shimizu et al. disclose the Magnus type machine having rotary columns 4 and 5 furnished with dimples 9, for the purpose of preventing fluid exfoliation.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to design the combined wind power generator and to provide the dimples as taught by Shimizu et al. for the purpose of preventing fluid exfoliation causing eddy losses during the generator operation.

7. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hansen (US 4,366,386) in view of Skarpa (US 6,375,424) and Terracina (WO 02/42640 A1) as applied to claims 13 and further in view of Shibata et al. (EP 1327773).

The combined wind power generator discloses invention essentially as claimed. However, it does not disclose driving motors being fewer in number than the number of the rotary columns and being used to drive the rotary columns simultaneously.

Shibata et al. disclose a wind turbine generator having blades 1 driven simultaneously by a single motor 23 for the purpose of adjusting the blades in accordance with the wind velocity.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to design the wind generator as taught by Skarpa and to provide a single motor driving simultaneously several columns as taught by Shibata et al. for the purpose of synchronized activation of the columns in accordance to the wind velocity.

***Double Patenting***

8. Claim 23 is objected to under 37 CFR 1.75 as being a substantial duplicate of claim 25. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

***Allowable Subject Matter***

9. Claims 25-27 are allowed.

Re claim 25, the feature of the rotary cylindrical column supported for extension and contraction in the radial direction with respect to the horizontal rotary shaft., in combination with the other limitations present, are neither disclosed nor taught by the prior art of record.

Claims 26 and 27 are allowable as being dependent on allowed claim 25.

10. Claim 23 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Response to Arguments***

11. Applicant's arguments filed May 5, 2008 have been fully considered but they are not persuasive.

Re claim 13, Hanson teaches the driving motor 76 for initially driving the spin shaft to provide the initial spin of each barrel around its own axis. Skarpa teaches the multi blade arrangement, with each blade having its own motor (see rejection above). In combination, Hanson and Skarpa teach the Magnus type turbine with plural rotors as claimed.

The air flow device in a form of spiral shaped ribs extending from an outer peripheral surface of the rotary cylindrical column that generates an air flow component at least parallel with an axis of said rotary cylindrical column upon the outer peripheral surface of said rotary cylindrical column is clearly taught by Terracina. The motivation for using these features in combination is indicated in the rejection above. Therefore, the combination of Hanson with Skarpa and Terracina discloses the invention as claimed.

12. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208



USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Regarding Scarpa teaching away from the use of cylindrical columns is related to the specific disclosure of bulb shaped blades versus prior art column blades as disclosed by Hanson. However the disclosure of individual motors each serving its particular blade is an improvement that is not related to the shape of the blade and may be employed by Magnus type turbines furnished with different blade shape than those disclosed by Scarpa. Therefore, the combination seems appropriate and the rejection is maintained by examiner.

Regarding Scarpa's cited statement (column 2, line 64, through column 3, line 7), examiner traverses applicant's interpretation that using the cylindrical column blades is precluded for a rotating "blade" that must also rotate on a rotation axis. What is taught by Scarpa is that the cylindrical configuration from the rotor to the end of the turbine is not adequate for the dynamical exploitation of all velocities related to the Magnus effect. However both, Hanson and Scarpa use motors for rotating the blades around their axis of rotation.

13. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., using fins that are different from the micro-fins disclosed by Terracina) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Regarding Terracina lacking explanation regarding how part 3 comes to be rotated about the blade 2 axis by the wind effect, examiner directs applicant's attention to page 5, lines 15-20 where Terracina discloses that: "Part 2 of the wind generator 1, provided with fins 4, can be integrally obtained from the blade 2 (having a particular cylindrical - conical shape with a profile modified in correspondence of their end), or it can be a part 3 separated from the blade 2 (having a particular cylindrical - conical shape with a profile modified in correspondence of their end)". However, Terracina does not indicate that integrally incorporated fins or separately formed finned part 3 rotate with respect to blade. One of ordinary skill in the art would understand from further description that the fins rotate with the blade above the blade axis. The aerodynamics of the moving blade will cause the air movement along the blade axis that will be significantly improved by the helical fins at the blade end.

Regarding the use of driving motors, both Hanson and Scarpa teach using of the motors to rotate the blades above their axes.

Regarding claims 21 and 22, applicant's argument regarding teaching of Shimizu et al. as being an non-analogous art it has been held that a prior art reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the applicant was concerned, in order to be relied upon as a basis for rejection of the claimed invention. See *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). In this case, although Shimizu et al. is directed to solving the problem of preventing fluid exfoliation in Magnus type machine furnished with rotating columns and driving VTOL helicopter, it is also applicable to solve the fluid

exfoliation in Magnus impellers or propellers serving different applications, like wind turbine motors or generators.

***Communication***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph Waks whose telephone number is (571) 272-2037. The examiner can normally be reached on Monday through Thursday 8 am to 5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Darren E. Schuberg can be reached on (571) 272-2044. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

June 10, 2008

/Joseph Waks/  
Primary Examiner, Art Unit 2834

